REMARKS

I. Summary of the Office Action

Claim 1 was pending in the above-identified patent application.

In the Office Action of March 9, 2005, independent claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by Tepper et al. U.S. Patent No. 6,418,345 (hereinafter "Tepper").

Independent claim 1 was also rejected under 35 U.S.C. § 102(e) as being anticipated by Dissing et al. U.S. Patent No. 6,561,968 (hereinafter "Dissing").

Independent claim 1 was also rejected under 35 U.S.C. § 102(b) as being anticipated by Chaney U.S. Patent No. 5,061,234 (hereinafter "Chaney").

Applicant herein amends claim 1 and add claims 2-21 to more particularly point out and distinctly claim the subject matter which Applicant regards as his invention. The Examiner's rejections are respectfully traversed. Reconsideration is respectfully requested.

II. Summary of Applicant's Independent Claim 1

As described in the application, the present invention is directed to methods and apparatus for treating living tissue with electromagnetic fields. At least one aspect of the invention is addressed to, for example, the problem that, inter alia, prior art systems "have voltage output stage powering the coils, which makes it difficult to set up experiments in which B (magnetic flux density) and dB/dt (time rate change of B), as well as the shape of the electric field E, which depends on dB/dt, can be well-defined" (Applicant's specification, page 4, lines 13-16). The present invention provides, inter alia, the capability to control the current to provide a varying dB/dt (i.e., the time rate of change in the magnetic flux density).

More particularly, the claimed invention accomplishes this by performing the following steps:

providing living tissue to be treated;

providing at least one signal generator for generating a plurality of signals;

providing a selection mechanism for selecting at least one output signal from the plurality of generated signals;

providing the at least one output signal to a power amplifier, wherein the power amplifier adaptively controls magnetic flux density (B) by generating a controllable current;

providing means for applying magnetic flux density (B) to the tissue; and

subjecting said tissue to a controllable magnetic flux density (B) and dB/dt.

III. The Tepper Reference

In rejecting independent claim 1, the Examiner cited portions of Tepper as showing each of the elements of claim 1. In particular, the Examiner cited Figures 10A-10C and their respective descriptions.

Tepper is directed to an apparatus and a method for providing pulsed electromagnetic field (PEMF) therapy to selected portions of a patient's body. Tepper uses a PEMF stimulator that sends programmed electrical impulses to transducer coils, which provides a uniform electromagnetic field. The electromagnetic field is delivered to a selected treatment site of the patient.

Unlike the present invention, Tepper is directed to providing a uniform magnetic field throughout treatment. At most, Tepper uses a stimulator to apply the uniform magnetic field at different times. For example, FIGS. 10A through 10C show that the stimulator is capable of delivering a burst of 1609 pulses. Tepper does not have the capability to control the current to provide a varying dB/dt (i.e., the time rate of change in the magnetic flux density).

In fact, nothing in Tepper shows or suggests providing a "power amplifier [that] adaptively controls magnetic flux density (B) by generating a controllable current" or "subjecting said tissue to a controllable magnetic flux density (B) and dB/dt."

Accordingly, for at least the reasons set forth above, the combination of features recited in independent claim 1 is patentable over Tepper.

IV. The Dissing Reference

In rejecting independent claim 1, the Examiner cited portions of Dissing as showing each of the elements of claim 1. In particular, the Examiner cited column 1, lines 55-65 and column 13, line 25 through column 14, line 32.

Dissing is directed to an apparatus and a method for stimulating growth in biological tissue. Dissing uses a pulse generator and a plurality of coils in which pulsed currents will cause fluctuating magnetic fields in a predetermined region holding the material to be stimulated. In order to optimize the effects in the region to be treated, it is desirable to have a constant average field over the region.

Unlike the present invention, Dissing is directed to providing a constant, average electric field over a given region. Dissing uses a pulse generator to provide pulses directly to a number of coils such that magnetic fields at the center of one coil is directed towards a living organism and magnetic fields at the center of another coil is directed away from the living organism. Dissing does not have the capability to control the current to provide a varying dB/dt (i.e., the time rate of change in the magnetic flux density).

In fact, nothing in Dissing shows or suggests providing a "power amplifier [that] adaptively controls magnetic flux density (B) by generating a controllable current" or "subjecting said tissue to a controllable magnetic flux density (B) and dB/dt."

Accordingly, for at least the reasons set forth above, the combination of features recited in independent claim 1 is patentable over Dissing.

V. The Chaney Reference

In rejecting independent claim 1, the Examiner cited portions of Chaney as showing each of the elements of claim 1. In particular, the Examiner cited Figure 4 and the corresponding description.

Chaney is directed to a magnetic neural stimulator that includes an inductive stimulation coil, an energy storage capacitor, a firing device, and a charging circuit. The energy storage capacitor is partially discharged into the stimulation coil to produce a magnetic pulse. The charging and discharging of the capacitor is continuously performed to produce a plurality of high frequency magnetic pulses.

Unlike the present invention, Chaney is directed to providing magnetic pulses by discharging a capacitor. As can be seen from FIG. 1, Chaney operates by charging a capacitor by turning on a power supply. Next, the stimulator generates its first pulse of current when the gate of the firing means is triggered, thereby allowing the capacitor to discharge through the stimulation coil. Chaney does not have the capability to control the current to provide a varying dB/dt (i.e., the time rate of change in the magnetic flux density).

In fact, nothing in Chaney shows or suggests providing a "power amplifier [that] adaptively controls magnetic flux density (B) by generating a controllable current" or "subjecting said tissue to a controllable magnetic flux density (B) and dB/dt."

Accordingly, for at least the reasons set forth above, the combination of features recited in independent claim 1 is patentable over Chaney.

VI. New Claims 2-21

New claims 2-21 are also presented herein to more particularly define the invention. No new matter has been added and these claims are fully supported and justified by the original application.

Applicant respectfully submits that, for at least the reasons set forth above, Applicant's invention defined by claims 2-21 are not disclosed by any of the prior art cited by the Examiner. For at least the foregoing reasons, Applicant respectfully submits that claims 2-21 are allowable over the cited prior art.

CONCLUSION

Applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, Applicant has provided specific examples of elements in the claims that are clearly not present in the cited prior art.

In addition, each of the combination of limitations recited in the claims includes additional limitations not shown or suggested by the prior art. Therefore, for these reasons as well, Applicant respectfully requests withdrawal of the rejection.

Further, there is no motivation shown to combine the prior art cited by the Examiner, and even if these teachings of the prior art are combined, the combination of elements of claims, when each is interpreted as a whole, is not disclosed in the Examiner's proposed combination. As the combination of elements in each of the claims is not disclosed, Applicant respectfully requests that the Examiner withdraw the rejections.

Applicant strongly emphasizes that one reviewing the prosecution history should not interpret any of the examples Applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, Applicant asserts that it is the combination of elements recited in each of the claims, when each claim is interpreted as a whole, which is patentable. Applicant has emphasized certain features in the claims as clearly not present in the cited references, as discussed above. However, Applicant does not concede that other features in the claims are found in the prior art. Rather, for the sake of simplicity, Applicant is providing examples of why the claims described above are distinguishable over the cited prior art.

Applicant wishes to clarify for the record, if necessary, that the claims have been amended to expedite prosecution. Moreover, Applicant reserves the right to pursue the original subject matter recited in the present claims in a continuation application.

Any narrowing amendments made to the claims in the present Amendment are not to be construed as a surrender of any subject matter between the original claims and the present claims; rather merely Applicant's best attempt at providing one or more definitions of what the

Applicant believes to be suitable patent protection. In addition, the present claims provide the intended scope of protection that Applicant is seeking for this application. Therefore, no estoppel should be presumed, and Applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents.

Further, Applicant hereby retracts any arguments and/or statements made during prosecution that were rejected by the Examiner during prosecution and/or that were unnecessary to obtain allowance, and only maintains the arguments that persuaded the Examiner with respect to the allowability of the patent claims, as one of ordinary skill would understand from a review of the prosecution history. That is, Applicant specifically retracts statements that one of ordinary skill would recognize from reading the file history were not necessary, not used and/or were rejected by the Examiner in allowing the patent application.

For all the reasons advanced above, Applicant respectfully submits that the rejections have been overcome and should be withdrawn.

For all the reasons advanced above, Applicant respectfully submits that the Application is in condition for allowance, and that such action is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees, which may be required for this Amendment, or credit any overpayment to Deposit Account No. 08-0219.

In the event that an Extension of Time is required, or which may be required in addition to that requested in a petition for an Extension of Time, the Commissioner is requested to grant a petition for that Extension of Time which is required to make this response timely and is hereby authorized to charge any fee for such an Extension of Time or credit any overpayment for an Extension of Time to Deposit Account No. 08-0219.

Respectfully submitted,

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